ACTD Lessons Learned
COCOM/OM Perspective

Defense Acquisition University
Transition Manager's Course

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UNCLASSIFIED

ACTD Lessons Learned

Transition Mgr's Course

- **Overall Lessons Learned**
- **Transition Killers**
- **Specific Lessons Learned keyed to**
  - **Class I ACTDS (Software)**
  - **Class II ACTDS (Hardware)**
  - **Class III ACTDS (System of Systems)**

ACTD Transition Lessons Learned (1)

Transition Mgr's Course

Mantra: Begin Transition Early

- ***Identify operational transition issues early.***
- ***Key in on Title X concerns – manning, training, equipping, etc.***
- ***Early Lead Service/Agency participation (POM, etc.).***
- ***Prepare strategy for CDD, CPD***
- ***Review relevant Capstone Requirements issues (J8-JI&I).***
- ***Plan and Resource Residual Operations/Pilot Services (C2, Funding/Support, Manning).***

ACTD Transition Lessons Learned (2)

Transition Mgr's Course

Mantra: Begin Transition Early

- **Prepare Transition Strategy**
  - ***Acquisition/Production (Milestone B, C, LRIP, FRP, Cat II)***
  - ***Force Integration plan (Fielding strategy)***
  - ***Force Mix recommendations (how many systems to accomplish CONOPS/National Strategy)***
  - ***Extended User Evaluations (are they needed and resourced?)***
  - ***Joint Integration and Interoperability - DOTMLPF Package preparation and execution.***
  - ***Is this a precedent development for follow-on ACTD***
  - ***Integrate into Future Concepts (turn over Concept as well as technology)***

The Red Flags

Transition Killer	Risk Mitigation	Principals
Systems immaturity… neither Demo nor JMUA ready	Pre-approval validation via lab or limited technical testing, TRL calculator (AFRL), TM letter	TM DUSD (OE)
Service, Transition authorities unidentified and/or uninvolved	Document in ID and MP..do not progress without commitment in ID	OM (COCOM), TM XM , DUSD (OE) Lead Service(s)
Service Operational Testers (i.e. OTEC, OPTEVFOR,	•Include in OM Assessment Cell •Include role in the Integrated	OM (COCOM) Participating Services, OTA working for

The Red Flags

Transition Killer	Risk Mitigation	Principals
Warfighters' military need and interest not clearly established (TM using best judgment with no COCOM/OM input)	•Pre-ACTD forum for warfighters' requirements definition (e.g.seminar/wargame). •Requirements/Cap Analysis w/in 3 mos of start. •CONOPS Documentation.	OM (COCOM) TM JROC DUSD (OE)
Demonstrations and Joint Military Utility Assessment (JMUA) inadequate (not rigorous) for acquisition; insufficient time for JMUA. Extensive DT and OT required - huge delays or cancelled	•Thorough MP-CONOPS-IAP crosswalk for COIs, metrics and data collection plan •Manage ACTD scope before acceptance by COCOM and prior to ID.	OM and XM TM DUSD (OE)

Transition Issues for Class I (Software) ACTDs

- **Proprietary Rights: Ownership?**
  - *Addressed in Management Plan and Transition Plan*
  - *Involve JAG early*
- **Integration: Standalone system or Integrated into larger system**
  - *Replacing all or part of an existing system?*
    - *Migration process involves data conversion (ID upfront)*
    - *High cost and great complexity associated with integrating series of releases over time (anticipate, document and fund in MP and TP)*

Transition Issues for Class I (Software) ACTDs

- **Iterative development issues**
  - *Technical Test before operational demo required.*
  - *Configuration Management: Freeze and document configuration NLT 6 weeks prior to Operational Demo.*

- **Spiral fielding during ACTD**
  - *Greater feedback and communication needed than other ACTDs; dynamics of moving back and forth between development and operational environment thru ACTD.*
  - *Team will be operating within all three phases (develop/assess/integration) simultaneously.*
  - *Select approach that fits scope of ACTD (5 transitions in 3 years is too risky)*

- **Top down Integration** - *Senior Control Group (led by TM)*
  - *DO NOT support plan that gives individual programmers the responsibility to integrate/add their modules to the system.*
  - *Recommend software integration and testing be run by an executive level control group that may include the programmers.*
  - *Should include people responsible for higher level module development. Include analysts, designers, and users (warfighters) in group.*

- **DO NOT integrate modules into the system whole before testing**
  - *Build software modules and test*
  - *Integrate modules into components, and test.*
  - *Integrate components into system, and test.*
  - *Rationale: easier to isolate bugs and conflicts to modules, components or system. Will not delay next MUA event or escalate cost.*

Transition Issues for Class I ACTDs

Transition Mgr's Course

- **Cost, Quality, Time ("CHEAPER, BETTER, FASTER")**
  - ➢ *Experience shows we can do 2 of the 3 at the expense of the other:*
    - ◆ *Sacrifice Cost for Quality and Time* ***or worse***
    - ◆ *Sacrifice Quality for Cost and Time*
    - ◆ *Prioritize and have realistic expectations*
    - ◆ *Manage Management Plan signatories and user expectations*
  - ➢ *Mo' Money doesn't solve all problems. Sometimes, time is the key factor.*
    - ◆ *Concerned about 18-24 month ACTD/JCTDs. < 80% solution?*
    - ◆ *ACTDs may be accelerated, but the acquisition system, training and doctrine ire still problematic.*

- **Loss of control**
  - *Greatest risk of failure from losing control-unsure of project status, unable to report accurate progress.*
  - *Avoid wanderlust: Good idea cutoff data, stick to build plan, manage configurations during EUE and Residual period.*
  - *Code Issues*
    - *Avoid building more code to solve problems*
      - *Too costly, time-consuming leads to greater instabilities and integration problems.*
    - *Establish coding "specifications"*
      - *Do not write code that is too tight.*
      - *Do not write code that is too complex or unique. "Insure it is readable by other programmers (government users)". Efficient code is useless if it can not be modified by the user.*
      - *Document all changes to existing code.*

Transition Issues for Class I ACTDs

- **Consider the end-to-end architecture.**
  - *Data Sources*
    - *List of required Databases and their location*
    - *Data Conversion issues (non intrusive approach)*
    - *Distributed database requirements: live access, parsed database*
    - *Consider similar issues for outside access to your database*

- **Consider the end-to-end architecture (con't).**
  - *Process Controls/CONOPS*
    - *Data control: Commander's protocols for access, read/write privileges*
    - *Data conversion-sampling rates for correctness? All at once? When sampled?*
    - *Back-ups-incremental, total, online/active back-ups or shutdown required?*
    - ***DO NOT** rely exclusively on test data for demos; use real data.*
  - *Migration to Force Structure Issues*
    - *Immediate Replacement? XM should be aware of degree of disruption during installation*
    - *Parallel operation requirements (running legacy and migration simultaneously)*
      - ***CON**: If so, more costly and should be documented in MP/TP.*
      - ***PRO**: Provides more flexibility for warfighter.*
      - ***CON**: Manpower intensive because running two systems (document and resource).*
    - *Staged Migration or Conversion of part of a legacy system*
      - *Link migration to change management process of legacy system (synchronize)*
      - *Involve original Program Office (integrate, be subsumed).*

Transition Issues for Class I ACTDs

- **Consider the end-to-end architecture (con't).**
  - *Migration to Force Structure Issues*
    - *Logistics and Maintenance- Contract, Military?*
      - *Build in cost to handle "incubator" period- inept users, system tweaking, exposure to other systems will create problems.*
    - *Pilot Services Options may be required until production units available.*
- **Training for system, operators, and maintainers**
  - *Document in Management Plan/Transition Plan*
  - *Type of training, target audience keyed to NEC, MOS, AFSC, OBSC*
  - *Curriculum format, OJT, CBT*
  - *Funding: Who pays?*
  - *Milestones*

Transition Issues for Class I ACTDs

- **Descriptive documentation and User manuals**
  - *Who should provide – finger pointing between programmers,developers and analysts. Decide who will do it and document in Transition and Management Plans.*
  - *Documentation should include:*
    - *System Installation*
    - *Periodic System Testing requirements (automated and manual)*
    - *Start-up and shut down procedures*
    - *Casualty modes of operation*
    - *Inputs and outputs (data inputs, and products).*
- **Integration into Operating Environment**
  - *Trade offs between new OS and reduced capability (GCCS does not support web based, ACTD does).*
    - *Joint Theater Logistics – GCCS integrated vice web enabled*
    - *BADD, JLOG, JTL- distributed database access*
      - *IATO's*
      - *Parsed, live access?*

- **Protect Baseline Configuration**
  - *Global Hawk Block 10 vs. Block 5*
  - *Predator back to EMD*
- **Safety Releases**
  - *Joint Modular Lighterage System*
    - USA Developmental Test Command (DTC), Aberdeen – safety releases
- **Hazardous Material Issues**
  - *Predator AVGAS, 100 Octane Fuel*
  - *Global Hawk, MCE fire safety*
- **CDD/CPD that reflects character of ACTD**
  - *Predator- rail transport, all weather capable.*

Transition Issues for Class II (Hardware) ACTDs

Transition Mgr's Course

- **Training (System and Mission)**
  - *Document in TP, MP*
  - *Cost, responsibility, curriculum development*
  - *Distinguish between "Initial Qualification Training" and "Mission Qualification Training"*
  - *War College Modules, CAT 2/3/PFP Exercise Blocks*
- **System Manuals**
  - *SOPS, User Manuals, Tech Manuals*
- **…ility Assessments (Vulnerability, Suitability, MTBFR, Supportability)**
  - *Leverage as much as possible*
  - *Work closely in parallel with Lead-Service/OT&E*

Transition Issues for Class II (Hardware) ACTDs

Transition Mgr's Course

- **Personnel Issues (NEC, MOS, AFSC)**
  - ***Coordinate with Lead Service***
  - ***Alert Schoolhouses***
- **Life Cycle Costs (logistics tail)**
  - ***Document in Transition Plan***
- **Loadout Plans/Coord with TRANSCOM & Military Sealift Command**
  - ***Document in Transition Plan***
- **ICAO/FAA Coordination for aircraft or autonomous weapon systems**
  - ***Include on CONOPS Cell***
  - ***Document permissions, agreements in Transition Plan***

Transition Issues for Class III (System of Systems) ACTDs

- **Clear vision and managed expectations.**
  - *Warfighting concept has independent and dependent tasks.*
  - *Dependencies must be addressed and keyed to multiple systems.*
- **Is the system a sum of its parts?**
  - *Complementary technologies*
  - *Critical core technologies*
    - *Precedent capability from a technical and/or operational perspective. (Next Slide)*
- **Interative introduction into acquisition**
  - *Cover in Management Plan*
  - *Multiple entry points into acquisition (different POR's. milestones, independent).*

- **Transformation Change Package (TCP) with DOTMLPF recommendations must be developed in similar fashion (iterative and final inclusive package).**
- **Training**
  - *Iterative introduction*
- **Documentation**
  - *Iterative introduction.*

Class III ACTD Example (Joint Countermine)

Transition Mgr's Course

KEY:
PURPLE = JOINT
BLUE = USN
RED = USMC
GREEN = USA

Significant Utility

Demo'd

Some Utility

Minimal Utility

Green **Red**
Demonstrated

LRS
Green
- Totally clandestine
- Novel technique w/existing technology
- Accurate, esp for surface, BZ mines
- Bathymetric value

NMRS
Red
- Poor nav accuracy
- High false contact rate
- SSN employment
- Fiber optic tether
- No bathymetry

A/S
- No test of VSW EO-ID
- High false alarm rate
- Fouling in clutter
- RF LOS comms reqd
- No bathymetry
- Night ops

ML/A
- Partial SZ/VSW success
- UAV suitability
- Bathymetric value

COBRA
- Processing time
- Large sfc mine only
- Day only
- Optical value
- UAV suitability

ASTAMIDS
- IR vs buried mines
- Processing time
- UAV suitability
- Environmentals

ALISS
- Host platform suitability
- Contact mine survival
- Mine detonation feedback
- Night ops

JAMC
Red
- Impractically complex

ORSMC
Red
- Unvalidated threat

PowerBlade
Red
- Survivability
- Mobility
- Teleremote operation

EN-ATD
Red
- Lethality unproven
- Survivability
- Unexploded ordnance
- Host platform avail
- Environmental (sea state)
- Mission Planning software

ACP
Red
- Undemonstrated (classification)

CIMMD
Red
- Weight
- Sensory overload
- Ruggedize,
- wxproof
- Buried, non-metallic

JCA
- JMCIS dissemination
- Topo display accuracy
- Comm link reliability

JCOS
- Real time sim
- Complex setup
- Novel system data

Clandestine/LO Reconnaisance	Overt Reconnaisance	Sweep	Assault Breach	Land Clearance	C4I	M&S

JFCOM Transition Guidance

Transition Mgr's Course

- **Establish Transition Cell (Ops)**
  - *6 months prior to Demo Phase*
  - *Membership: JFCOM, Components, Service, other- COCOM input*
  - *Charter USJFCOM Transition Oversight Panel (J codes, DCOCOM, J86, OM Staff)*
- **Convene 1st Transition IPT (Program)**
  - *3 months prior to Demo Phase*
  - *Membership: XM, TM, JFCOM, Components, DUSD, Lead Service, Program Office*
- **Develop Written OM Transition Plan**
  - *1st Draft at midpoint of ACTD*
  - *Final Plan 6 months prior to end of Demo Phase*
  - *Deliver to XM*
  - *Brief to COCOM, DUSD, Program Office, Lead Service/Agency)*

Conclusion

Transition Mgr's Course

- **Transition Manager must do the following once the ACTD enters the Transition, Residual Operations period:**
  - *Stay plugged into the Lead-COCOM to protect original joint requirement.*
  - *Participate in the migration of system into the force structure*
    - *Manage financial issues (funds for residual ops, EUE, transition to acquisition).*
    - *Coordinate DCR/DOTMLPF package*
    - *Shepard ICD/CDD/CPD/JCD through process*
    - *Protect baseline configuration*
    - *Support P3I effort*
    - *Facilitate POM; support Title X organization*
    - *Oversee the establishment of Training and Logistics*
    - *Oversee configuration/change management*
    - *Insure documentation is provided (CONOPS, SOP, User Manuals, Tech Manuals).*
    - *Follow-up on Proprietary rights issues*
    - *Oversee migration into force structure.*
    - **Stay engaged with OM and TM - they are a resource**

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